

# *Hibbertia ferox* Jackes (Dilleniaceae), a new species from the White Mountains area of north Queensland

Betsy R. Jackes

## Summary

Jackes, B.R. (2018). *Hibbertia ferox* Jackes (Dilleniaceae), a new species from the White Mountains area of north Queensland. *Austrobaileya* **10**(2): 282–285. *Hibbertia ferox* Jackes is described as new. This species with ericoid, needle-like leaves is morphologically similar to *H. acicularis* (Labill.) F.Muell., and *H. exutiacies* N.A.Wakef. from south-eastern Australia. *H. ferox* is endemic to the White Mountains and Lake Buchanan area of north Queensland. It forms a low shrub usually growing on sandstone or lateritic derived soils and is unusual in exhibiting diallagy in the foliage.

Key Words: Dilleniaceae, *Hibbertia*, *Hibbertia ferox*, Australia flora, Queensland flora, taxonomy, new species, diallagy

B.R. Jackes, College of Science and Engineering, James Cook University, Townsville, Queensland 4811. Email: betsy.jackes@jcu.edu.au

## Introduction

The genus *Hibbertia* Andrews was traditionally divided into sections based on the arrangement of the androecium; however, Horn (2009) divided the species into two subgenera based on a molecular phylogenetic analysis. All the species with needle-like, ericoid leaves are in *Hibbertia* subgenus *Hemistemma* (Thouars) Horn. These taxa also have revolute leaf margins which hide the undersurface of the leaf except for the midrib.

A distinctive and undescribed species of *Hibbertia* belonging to this subgenus has been known from the White Mountains area of central Queensland since its apparent, first collection in 1992 by Tony Bean. Whilst an overall revision of the genus is ongoing by Hellmut Toelken, the species under consideration requires a name and this is undertaken here with his approval.

## Materials and methods

All vegetative measurements were made on dried material and compared with fresh material, except for the flowers where measurements were based on fresh material. All material was obtained from the Burra

Range section of the White Mountains National Park under a permit held by the author.

Abbreviations used in the specimen citation includes NP (National Park).

## Taxonomy

***Hibbertia ferox* Jackes sp. nov.** Distinguished from *H. acicularis* (Labill.) F.Muell. by the sessile flowers and 9 stamens, rarely 10, as compared with the flowers on peduncles and stamens 6–8. It may be distinguished from *H. exutiacies* N.A.Wakef., by stamens 4–6 and the terminal awn on the leaf deciduous rather than persistent. **Typus:** Queensland. MITCHELL DISTRICT: Poison Valley Road, White Mountains National Park, 12 April 2000, K.R. McDonald KRM425 (holo: BRI [1 sheet]).

Shrub 0.3–0.7 m high, much branched from near the base up to 1 m wide, resprouting from rootstock after fire; branches not ridged; young shoots pubescent, soon becoming glabrous, hairs simple and erect. Leaves crowded on short shoots, ericoid, alternate, almost sessile, breaking off when dry leaving a protuberance; axillary hair tufts vary in length from c. 0.1 mm long near the edge of the protuberance, increasing up to 0.5 mm long in the centre before decreasing again; petiole c. 0.5 mm long, 0.2–0.3 mm wide, hairs simple,

semi-adpressed; lamina 5–11 mm long, *c.* 1.5 mm wide, margins revolute so that only the midrib of the abaxial surface is visible; apex narrowing into a pungent reddish point, persistent awn *c.* 0.5 mm long; adaxially with simple tubercle-based hairs, papillae are present on the margins interlocking with papillae on the side of the midrib; abaxial midrib bears scattered tubercle-based hairs. Flowers terminal, sessile, subtended by 4 or 5 broadly lanceolate, brown, scarious bracts, 2–2.5 mm long and 1.8–2 mm wide, papillate on the margins. Sepals unequal, broadly lanceolate, 3 outer sepals *c.* 8 mm long, 2 inner sepals to 10 mm long, apiculate, inside glabrous, midrib prominent forming a ridge along the back, hairs chiefly on midrib and margins, scattered to 0.5 mm long. Petals obovate, deeply emarginate, 10–15 mm long, 7.5–10 mm wide, yellow. Stamens 9, or rarely 10, erect, on one side of carpels, yellow; filaments 2–2.5 mm long, free to base; anthers to 2 mm long, dehiscing by introrse, longitudinal slits; staminodes absent. Carpels 2, free, obovoid, glabrous; styles *c.* 3 mm long, attached to outer apex of each carpel, then curving outwards and upwards to the side of the anthers. Fruit not seen. **Figs. 1–3.**

**Additional specimens examined:** Queensland. MITCHELL DISTRICT: Old Poison Valley road, White Mountains NP, Apr 1992, *Bean 4302* (BRI); 5 km NW of Burra, Apr 1993, *Thompson HUG341 et al.* (BRI); 4.8 km N of Burra Microwave Tower, Aug 1997, *Bean 12278* (BRI); 8 km from Townsville – Mt Isa Highway on Poison Valley Road, White Mountains NP, Sep 2012, *Townsend s.n.* (CNS, JCT). SOUTH KENNEDY DISTRICT: 24 km SE of Torrens Creek, Oct 1997, *Thompson HUG502 & Baumgartner* (BRI); *c.* 31 km E of Lake Buchanan, Jun 1998, *Thompson BUC2022 & Turpin* (BRI).

**Distribution and habitat:** *Hibbertia ferox* is endemic to north Queensland where it is common in the Burra Range area of the White Mountains NP, with a further southern disjunction to an area east of Lake Buchanan (21° 34' S, 146° 12' E) where the same geological formation occurs. Within the Burra Range area it appears to be widespread, growing on sandy soils derived from sandstone or laterite, often in association with species of *Acacia*, *Grevillea sessilis* C.T.White and *Calytrix microcoma* Craven.

**Affinities:** Morphologically *Hibbertia ferox* appears to be closely related to *H. acicularis* and *H. exutiacies*. *Hibbertia acicularis* has been recorded from all eastern states and is particularly common in New South Wales, Victoria and Tasmania, although there are populations in coastal and subcoastal areas of eastern Queensland with a much higher rainfall than the White Mountains. *Hibbertia acicularis* differs in the flowers with 6–8 stamens being borne on peduncles in the leaf axils rather than with 9 (–10) stamens and terminal and sessile as in *H. ferox*.

*Hibbertia exutiacies* is commonly found in Victoria and South Australia with isolated records elsewhere, although it is probable that its apparent occurrence in southern Queensland may apply to other species. It differs from *H. ferox* by the smaller flowers, 3.5–8.5 mm long versus 10–15 mm long, and only 4–6 stamens. Also in this species the apical awn on the leaf is reported to be deciduous unlike the persistent apical awn in *H. ferox*.

**Notes:** *Hibbertia ferox* exhibits diallagy, a term used by George (2002) to describe a reversible physiology strategy in plants. Under normal environmental conditions the plants are green and the lower leaves spread at an angle of about 75° degrees to the stem; however, under dry conditions the colour changes to yellowish-brown to brown and the angle is reduced to under 25° degrees (**Figs. 4 & 5**). Colour returns to green when adequate moisture becomes available. It has been noticed that the leaves closest to the roots are the last to change colour and the first to regain colour.

**Phenology:** Flowering chiefly occurs in late August and September, but flowering material has been collected in other months, fruiting material has not been observed.

**Etymology:** The epithet is from the Latin *fero* (fierce) referring to the pungent awn on the apex of the lamina. Dry leaves readily detach and then reattach to fingers and clothes.



**Fig. 1.** Holotype of *Hibbertia ferox* (McDonald KRM425, BRI).





**Fig. 2.** *Hibbertia ferox*. Flower (Townsend s.n., JCT). Photo: J.W. Elliott.



**Fig. 4.** *Hibbertia ferox*. Portion of plant showing diallagy developing, Poison Valley Road, Burra Range (no voucher). Photo: K. Townsend.

### Acknowledgements

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**Fig. 3.** *Hibbertia ferox*. Habit of flowering plant (Townsend s.n., JCT). Photo: K. Townsend.



**Fig. 5.** *Hibbertia ferox*. Plant showing diallagy with *Calytrix microcoma* in background, Poison Valley Road, Burra Range (no voucher). Photo: K. Townsend.

### References

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